

APPENDIX C

Accomplishments

OVERVIEW

In preparing the 2000 Lower West Coast Plan (2000 LWC Plan), the planning process analyses identified key regional issues. These included surface water availability; limits on expanding the Surficial Aquifer System (SAS) and Intermediate Aquifer System (IAS); the water quality of the Floridan Aquifer System (FAS); discharges from Lake Okeechobee to the Caloosahatchee Estuary; and, saltwater intrusion vulnerability in coastal areas.

To resolve these issues, the 2000 LWC Plan contained 29 recommendations that were organized into eight water resource development categories:

- Conservation.
- Groundwater Resources.
- Reclaimed Water.
- Regional Irrigation Distribution System.
- Seawater.
- Storage.
- Surface Water.
- Related Implementation Strategies.

Development of each of these water source options required regional, as well as local involvement, which the 2000 LWC Plan discussed.

Twenty-seven of the 29 recommendations in the 2000 LWC Plan were initiated during the plan's implementation, while two recommendations were not implemented. One program that would have provided the District with access to conduct aquifer and water quality testing during drilling of new municipal production wells was not implemented due to liability issues, and the other recommendation (Well Abandonment Program) was replaced with a regulatory program.

The Five-Year Water Resource Development Work Plan, contained in the SFWMD's annual *South Florida Environmental Report, Volume II*, summarizes the progress of these recommendations.

Implementation of 2000 LWC Plan Recommendations

1. Conservation

1.1 Develop a Conservation Program

Recommendation: The South Florida Water Management District (SFWMD or District) will develop and implement a comprehensive Water Conservation

Program to cultivate a conservation ethic in cooperation with water users, utilities and local governments to promote water conservation and more efficient use of water resources in the LWC Planning Area. Provisions for fiscal incentives are envisioned as potential tools to establish this program.

Progress: The conservation effort has been strongly supported by local governments and represents a major accomplishment of the 2000 LWC Plan. In 2003, the District adopted year-round mandatory water conservation measures for landscape irrigation (Rule 40E-24) for all of Lee and Collier counties and applicable portions of Charlotte County. In addition, the Districtwide campaign regarding landscape irrigation (the “Three-Day-A-Week Watering Plan”) was completed in FY 2004. These measures ensure the long-term sustainability of water resources in these counties, which make up a significant portion of the LWC Planning Area.

District staff continues to work with local governments, property owners, landscape professionals and other interested parties to incorporate Xeriscape™ standards into applicable codes.

The District provides funding assistance to water users for development of alternative water supplies and water conservation through the following cost-sharing programs:

The alternative water supply funding program funds capital projects of utilities and others. The District assisted in creating 112 million gallons per day (MGD) additional water from 2000 to 2004 at a cost to the District of \$4.8 million for this region. The alternative water supply projects that received funding include reuse and reverse osmosis. Since the enactment of Senate Bill 444 in 2005, this program has been restructured to meet new guidelines under the Water Protection and Sustainability Program.

The District established the Water Savings Incentive Program (WaterSIP) in 2002 to provide cost-share funding for the implementation of water saving projects that would reduce urban water usage. The District participated in 50-50 cost-sharing with water providers for water-saving technologies, such as indoor plumbing retrofits, showerhead and toilet replacements and outdoor irrigation retrofits. From 2000 to 2004, an additional 147,000 gallons per day (GPD) was created in the LWC Planning Area at a cost to the District of \$160,000.

1.2 Mobile Irrigation Labs

Recommendation: The District will support maintaining the existing (one agricultural and one urban) Mobile Irrigation Labs (MILs) and encourage establishment of two additional MILs (one agricultural, one urban) in the LWC Planning Area through identification of dedicated non-District funding sources for existing and additional MILs.

Progress: The District has maintained the two existing MILs and added another urban MIL, which is funded through the SFWMD's Big Cypress Basin. The three MILs serve the District as follows: one MIL performs urban evaluations in Collier County (Big Cypress Basin), one MIL provides urban evaluations in Lee County and one MIL provides agricultural evaluations for all of the counties in the LWC Planning Area. Each urban MIL conducts approximately 140 evaluations per year, while the agricultural MIL conducts roughly 110 evaluations per year. The potential water savings from the three MILs for the past five years was 0.9 MGD. The estimated savings assume that each participant fully implemented all of the MIL recommendations. Two additional urban MILs have been established, but are not District-funded.

2. Groundwater Resources

2.1.1 Surficial Aquifer Monitoring

Recommendation: Maintain existing monitoring program for the SAS and expand the program where appropriate following the evaluation of well locations and parameters relative to current and projected land uses, aquifer use, existing saltwater intrusion, and areas of potential saltwater intrusion.

Progress: The initiative for building this monitoring program has been completed, and the program is being maintained. Activities included the installation of 13 water table and Lower Tamiami monitoring wells in the Big Cypress Basin, as well as the completion of a potentiometric mapping project for the IAS, which defined and delineated the water table, Lower Tamiami, Sandstone and Mid-Hawthorn aquifers and provided greater interpretations of the LWC Planning Area's regional hydrogeology. Ongoing monitoring efforts continued in the SAS and IAS, and an additional 23 recorders were installed on SAS wells in Hendry County to evaluate local water level trends.

2.1.2 Surficial Aquifer Rulemaking

Recommendation: To promote consistency, the SAS concepts and criteria used in the 2000 LWC Plan should be incorporated into the District's Consumptive Use Permitting (CUP) Program and other components of the District's overall water supply management responsibilities through rulemaking.

Progress: Water use revisions were completed in 2003 that addressed this recommendation.

2.1.3 Surficial Aquifer Modeling

Recommendation: By no later than the five-year update of the 2000 LWC Plan, conduct a regional evaluation (using finer grid models for CUP renewal applications) of the effects the projected demands might have on the SAS and associated water resources. Revise the plan to address any identified problems.

Progress: A private engineering firm under contract to the SFWMD is conducting the SAS Model implementation using the United States Geological Survey (USGS) modular three-dimensional groundwater flow (MODFLOW) code. The model boundary for the SAS Model includes Lee, Collier, and Hendry counties and portions of Glades, Charlotte, Palm Beach, Broward, Miami-Dade, and Monroe counties. The SAS Model consists of surface water, the water table aquifer and Lower Tamiami Aquifer of the SAS, and the Sandstone Aquifer of the IAS. The model was discretized into 765 rows and 622 columns using a square grid with a uniform row and column spacing of 704 feet. The total area of the model is about 5.4 million acres; however, for modeling purposes, about 61 percent of the area is active. The model grid is oriented north-south. This model will be available to the public for planning purposes once calibration, documentation and peer review are completed.

2.2.1 Intermediate Aquifer Monitoring

Recommendation: Maintain existing monitoring program and expand where appropriate following evaluation of well locations and parameters relative to current and projected land uses, aquifer use, existing saltwater intrusion, and areas of potential saltwater intrusion. Emphasis should be placed on monitoring and analysis of water and salinity levels.

Progress: The initiative for building this monitoring program has been completed, and the program is being maintained. Activities included the installation of 13 water table and Lower Tamiami monitoring wells in the Big Cypress Basin, as well as the completion of a potentiometric mapping project for the IAS, which defined and delineated the water table, Lower Tamiami, Sandstone and Mid-Hawthorn aquifers and provided greater interpretations of the LWC Planning Area's regional hydrogeology. Ongoing monitoring efforts continued in the SAS and IAS.

2.2.2 Intermediate Aquifer Rulemaking

Recommendation: To promote consistency, incorporate the IAS concepts and criteria of the 2000 LWC Plan into the District's CUP Program and other components of the District's overall water supply management responsibilities through rulemaking, such as MFLs; coastal saltwater intrusion prevention; wetland protection; aquifer protection from excessive drawdowns; aquifer monitoring; and, protection from contamination.

Progress: Water use revisions were completed in 2003 that addressed this recommendation.

2.2.3 Intermediate Aquifer Modeling

Recommendation: By no later than the five-year update of the 2005 LWC Plan, conduct a regional evaluation (using finer grid models developed for CUP

renewal applications) of the effects projected demands might have on the IAS and associated water resources. Revise the plan if any potential problems are identified, and identify specific water resource and water supply development projects to meet the projected demands.

Progress: This recommendation has been folded into Recommendation 2.1.3, which now encompasses modeling efforts for both the SAS and IAS.

2.3.1 Floridan Aquifer Model

Recommendation: Develop a comprehensive Floridan Aquifer System (FAS) groundwater model, focusing on Lee, Collier and possibly Hendry counties to conduct predictive analysis for the future. The District and public will use this model to evaluate both water withdrawals and storage via aquifer storage and recovery (ASR).

Progress: The District entered into a cooperative agreement with Florida Atlantic University to implement and document a Floridan Aquifer System Model using the SEAWAT Code. The FAS Model study area encompasses Lee, Hendry, Collier, Glades and Charlotte counties in the LWC Planning Area, but was extended for modeling purposes to include all or part of Highlands, Hardee, DeSoto, Palm Beach, Broward, Monroe and Miami-Dade counties. Nevertheless, the focus of the study area lies within Charlotte, Glades, Lee, Hendry and Collier counties.

The main advantage of this model, besides its high detail of the geology, is its ability to represent the head, flow and chloride in the system on a daily, weekly or monthly basis, including boundary interaction and sources/sinks effect. The model calibration period was from January 1997 to December 2001.

The model was discretized into 575 rows and 300 columns using a square grid with a uniform row and column spacing of 1,500 feet. The total area of the model is about 9 million acres; however, for modeling purposes, about 66 percent of the area is active. The model grid is rotated 30 degrees counterclockwise from the north to align model rows with the principal direction of flow in the Floridan Aquifer. This model will be available to the public for planning purposes once calibration, documentation and peer review are completed.

2.3.2 Floridan Aquifer Monitoring

Recommendation: Expand the FAS groundwater monitoring network to collect the data necessary to establish the relationship between water use, water levels and water quality in the LWC Planning Area.

Progress: Groundwater level and water quality monitoring in the LWC Planning Area was expanded between 2000 and 2005. The FAS network was expanded to

12 sites within the LWC Planning Area. Continuous water-level recorders have been installed at these sites, and periodic water quality assessments are available.

2.3.3 Floridan Aquifer Data Partnerships

Recommendation: Develop partnerships with water users and utilities that are developing or planning to develop the FAS for water supply, ASR or wastewater effluent disposal.

Progress: This recommendation has been folded into Recommendation 2.3.1, whereby a cooperative agreement between the District and FAU has been established to implement the FAS Model.

2.3.4 Floridan Aquifer Government Cooperation

Recommendation: Continue to work with other governmental entities, including the Florida Legislature, Florida Department of Environmental Protection (FDEP) and U.S. Environmental Protection Agency (USEPA), to explore environmentally acceptable alternative desalination concentrate disposal options.

Progress: While utilities in the LWC Planning Area continue to rely on deep injection wells for concentrate disposal; efforts continue to move forward in developing the FAS as a potable water supply. The District and FDEP have held discussions concerning alternative desalination concentrate disposal options, and the District also participated in a workshop with the St. Johns River Water Management District (SJRWMD), FDEP and United States Department of Agriculture (USDA) to discuss potential options. The subject of reclassifying concentrate as an industrial waste to facilitate disposal has also been discussed.

3. Reclaimed Water

3.0 Reclaimed Water

Recommendation: The 2000 LWC Plan recommended the development of a regional irrigation system to increase the potential volume of reclaimed water that could be made available in the LWC Planning Area. The plan also contained recommendations for local governments and utilities to incorporate additional measures regarding the use of reclaimed water.

Progress: The LWC Planning Area continues to be a leader in the state, with 21 of 22 wastewater facilities using reclaimed water. The LWC Planning Area reuses 93 percent of treated wastewater, or 72 MGD.

4. Regional Irrigation System

4.1 Regional Irrigation Distribution System Study

Recommendation: Evaluate, with the assistance of local governments, water users and utilities, the feasibility of constructing a subregional irrigation water distribution system(s) using reclaimed water and other options to meet the growing urban irrigation demands of the LWC Planning Area.

Progress: The RIDS Project included three phases: Phase 1, Feasibility Analysis (completed in 2002); Phase 2, Subregional Analysis (completed in 2004); and Phase 3, Implementation (which began in 2004). Implementation is being conducted by individual utilities with financial support provided through the District's Alternative Water Supply (AWS) Grant Program, which provides cost-sharing opportunities for AWS projects.

The RIDS study area was divided into three subregions, and an inventory of potential alternative sources of supply was identified and prioritized. These preferred projects included reclaimed water/ASR (contingent upon regulatory considerations), surface water/ASR (contingent upon regulatory considerations) and other systems. Of the 32 identified projects, 28 involved aquifer storage and recovery (ASR) for storage and four involved interconnects. It was estimated that these projects could provide 221 MGD of urban irrigation water by 2020 at an estimated total capital cost of \$208 million.

5. Seawater

5.0 Seawater

Recommendation: The 2000 LWC Plan identified the option of using seawater from the Gulf of Mexico as a raw water source.

Progress: The plan concluded that seawater is a potential source of water, but in 2000, was not cost-effective. However, the District and Florida Power & Light (FPL) jointly funded a feasibility study to investigate the potential of co-locating a water treatment plant with an electric generating station using saline water for cooling purposes. The study assumed reverse osmosis (RO) as the treatment technology and identified two FPL plants, one in Fort Myers and another in Fort Lauderdale, as having the best potential for development of a water treatment plant. The Seawater Desalination Study is currently being updated.

6. Storage

6.1.1 Aquifer Storage and Recovery Water Quality

Recommendation: Continue working with other government entities, including the Florida Legislature, Congress, USEPA and FDEP to explore changes to state

and federal rules that regulate the Underground Injection Control Program to allow for (and encourage) injection of untreated or partially treated groundwater or surface water with Aquifer Storage and Recovery (ASR).

Progress: The SFWMD is committed to conducting scientific studies to determine the impact of such injections on the aquifer system before it proceeds with any requests for legislative or rule changes that may affect the storage of partially treated water via ASR. To date, no legislation or rulemaking has been initiated.

6.1.2 Aquifer Storage and Recovery Rulemaking

Recommendation: The SFWMD should develop CUP rules to address the use of the Floridan Aquifer for ASR and water use to assure compatibility between concepts.

Progress: Rules concerning ASR were incorporated into the *Basis of Review for Water Use Permit Applications within the South Florida Water Management District* in 2003 (SFWMD 2003). Of the 28 existing ASR wells in the SFWMD, 14 are located in the LWC Planning Area, including six operational ASR wells, seven wells in operational testing and one inactive ASR well.

6.2.1 Regional and Local Retention

Recommendation: Regional retention projects that raise water levels through either system modifications or operational changes and benefit water supply without causing environmental harm should be considered for cost-sharing from the District's Water Resource Development funds.

Progress: The Big Cypress Basin, which encompasses all of Collier County and part of Monroe County, is responsible for the operation, maintenance, planning and capital improvements to 169 miles of canals and 44 water control structures. As part of the Big Cypress Basin 10-Year Capital Improvement Program, several retention projects have been completed, creating 365 acre-feet of additional annual retention volume.

6.3 Reservoirs

Although reservoir projects are considered storage options, they are discussed under Surface Water, which follows.

7. Surface Water

7.1 Caloosahatchee River ASR Pilot Project

Recommendation: The SFWMD should work cooperatively with the United States Army Corps of Engineers (USACE) to site, design, construct and operate a regional ASR pilot project.

Progress: The Caloosahatchee River (C-43) Basin ASR Pilot is a project being conducted to assist in the implementation of the Comprehensive Everglades Restoration Plan (CERP). This pilot project is designed to address technical and regulatory uncertainties associated with regional implementation of aquifer storage and recovery (ASR) projects. In the Caloosahatchee River (C-43) Basin ASR Pilot Project, ASR technology continues to be tested and evaluated. The Caloosahatchee River Basin ASR Pilot Project will provide information regarding the characteristics of the aquifer system within the Caloosahatchee River Basin, as well as determine the specific characteristics and acceptability of the Upper Floridan Aquifer System in that area as a storage zone.

7.2 C-43 Storage Project

Recommendation: Cooperate with the USACE to develop the project implementation Report (PIR), design, construction and operation of a regional reservoir and ASR project within the Caloosahatchee Basin.

Progress: The C-43 (Caloosahatchee River) West Reservoir Project is one of the District's Acceler8 projects, as well as a component of a larger restoration project for the Caloosahatchee River and Estuary. The purpose of the project is to capture water from the Caloosahatchee River (C-43) during high-flow times for storage and dry-season use. The wet-season capture of water benefits the system by reducing high-volume flows that may impact the estuary and improving water quality through storage and biological treatment. Stored water will be released at environmentally appropriate rates back into the Caloosahatchee River during dry periods to help meet minimum flows and provide water supply benefits.

The C-43 West Reservoir will have a total storage capacity of about 170,000 acre-feet (55 billion gallons), on a land area of about 8,000 acres and with a water storage depth of up to 20 feet. Current project activities include construction of test cells at the site and completion of the preliminary design. Construction of the full-scale reservoir is scheduled to begin in the summer of 2007 and finish in late 2010.

7.3 Southwest Florida Feasibility Study – Complete Study

Recommendation: The SFWMD should work in cooperation with the USACE to initiate and complete the Southwest Florida Feasibility Study (SWFFS) by the Year 2005 as recommended in the CERP.

Progress: The U.S. Army Corps of Engineers (USACE) and the SFWMD are conducting the SWFFS, which will develop a water resources plan for the entire southwest Florida area. The study will also provide for ecosystem and marine/estuary restoration and protection, environmental quality, flood protection, water supply and other water-related purposes. It is anticipated that this study will be completed by 2008.

7.4 Minimum Flows and Levels

Recommendation: Establish Minimum Flows and Levels (MFLs) for the Caloosahatchee River and Estuary by December 2000, in accordance with Section 373.042, Florida Statutes (F.S.).

Progress: The MFLs have been incorporated into Recommendations 8.1.1 and 8.1.2. The MFL for the Caloosahatchee River and Estuary was established in 2000 and an update was initiated in 2003 (SFWMD 2003).

7.5 Well Abandonment Program

Recommendation: The Well Abandonment Program administered by the District was a voluntary program that identified abandoned artesian wells, performed geophysical logging, and plugged or rehabilitated the wells, as needed, to prevent deterioration of the SAS through upland leakage or discharge to the land surface.

Progress: The District closed 3,300 Floridan wells in the LWC Planning Area between 1979 and 1991. Although the District continues to assist with state or local initiatives, presently there is no sponsored program in the region.

7.6 Saltwater Influence

Recommendation: Saline water has been a recurring problem for the potable water intakes in the Caloosahatchee River. The potable water intakes are located approximately 1 mile upstream of the S-79 Structure. During extended periods of low flow, the chloride content of the surface water increases well beyond the recommended limit of 250 milligrams per liter (mg/L) for drinking water. The SFWMD should coordinate additional analysis of the saltwater influence problem at the S-79 Structure.

Progress: Two ongoing projects have the potential to mitigate the recurring salinity problems for Lee County's Olga Water Treatment Plant, which withdraws water from the Caloosahatchee River, about 1 mile upstream of the S-79 Structure. Salinities increase at that location during periods of very low flow in the river. In 2005, the SFWMD began constructing the C-43 West Reservoir in Hendry County. The reservoir will have the potential to store up to 55 billion gallons of water captured during high-flow periods from the river for release back into the river during low-flow periods to meet environmental needs. These environmental needs are directly associated with maintaining reduced salinity in the river below the S-79 Structure. In addition, Lee County is currently working on Phase II of an ASR project at the Olga Water Treatment plant. This District co-funded project involves installation of a second ASR well for high-volume storage for treated supply from the Olga facility, which would enable the county to reduce or suspend withdrawals from the river when salinities increase above the potable range.

7.7 Permitting Issues Associated with Aquifer Storage and Recovery

Recommendation: Continue working with the Florida Legislature, USEPA and FDEP to explore rule changes to the federal and state Underground Injection Control Program to allow for (and encourage) injection of untreated or partially treated groundwater or surface water with ASR.

Progress: The SFWMD is committed to conducting scientific studies to determine the impact of such injections on the aquifer system before it proceeds with any requests for legislative or rule changes that may affect the storage of partially treated water via ASR. To date, no legislation or rulemaking has been initiated.

7.8 Southwest Florida Feasibility Study – Evaluate Surface Water Body Needs

Recommendation: The Southwest Florida Feasibility Study should evaluate estuary and other environmental needs for the flows from surface water bodies. The results of this evaluation should be incorporated into future plan updates.

Progress: The SFWMD and USACE approved a Project Management Plan for this study in January 2002. The following activities for this study have been completed: predevelopment vegetation map; development of four subregional MIKE SHE models, a 2000 and 2050 land use map, and demand projections; water quality data assessment; identified ecological-estuarine performance measures and targets, and hydrologic stages and flows; and identification of an initial array of alternatives. It is anticipated that this study will be completed by late 2008.

8. Related Implementation Strategies

8.1.1 Rulemaking

Recommendation: The SFWMD will conduct a public rulemaking process in accordance with Chapter 120, F.S., for the purpose of incorporating salient portions of this plan into the CUP Program and other components of the District's overall water supply management responsibilities. Matters recommended for rulemaking consideration include: a) level of certainty; b) resource protection criteria; c) water shortage triggers; d) the MFLs for the Caloosahatchee River and Estuary and aquifers within the LWC Planning Area; and, e) special designation area amendments, including reduced threshold areas and water resource caution areas.

Progress: In June 2003, the Governing Board adopted the “B-List” of rule amendments (including ASR rules), which establish the criteria for the level of certainty, resource protection, water shortage triggers and special designation areas. The “B-List” of rule amendments went into effect September 2003.

The MFLs for the Caloosahatchee River and Estuary and aquifer system within the LWC Planning Area, excluding the water table and Floridan Aquifer, were established in 2000 and 2001, respectively. An update was initiated in 2003 for the Caloosahatchee River and Estuary MFL. This is addressed in Recommendation 8.1.2.

8.1.2 Minimum Flows and Levels

Recommendation: Establish the MFLs for the Caloosahatchee River and Estuary and aquifer systems within the LWC Planning Area by December 2000.

Progress: Minimum aquifer levels have been developed for the Lower Tamiami Aquifer in the SAS, and the Mid-Hawthorn and Sandstone aquifers in the IAS. The LWC Aquifer MFL Study (SFWMD 2000) concluded that the proposed minimum levels, which reflect the structural top of the aquifers, were not being exceeded and were not expected to be exceeded during the next 20 years. Therefore, a recovery strategy was not needed. A minimum level prevention strategy is detailed in the report (SFWMD 2000) and in Rule 40E-8.0421(5).

The MFL Rule established for the Caloosahatchee Estuary states that a minimum mean monthly flow of 300 cubic feet per second (cfs) is required to maintain sufficient salinities at the Franklin Lock and Dam, or S-79 Structure, in order to prevent a MFL exceedance that would cause significant harm to downstream submerged aquatic vegetation communities. The MFL Study for the Caloosahatchee River indicated that proposed criteria for the Caloosahatchee River and Estuary will be exceeded on a regular and continuing basis until additional storage is provided in the basin to supply the water needed. Therefore, the MFL document included a recovery and prevention strategy.

The structural and operational features of the recovery plan will be implemented through ongoing SFWMD water supply development efforts, including the development of regional water supply plans, the Comprehensive Everglades Restoration Plan (CERP) and the District's Acceler8 projects. The SFWMD has completed a LWC Plan (SFWMD 2000) and a Caloosahatchee Water Management Plan (SFWMD 2000), pursuant to Section 373.0361, F.S., which include projects needed to implement the MFL recovery and prevention strategy. The MFL assumes that local basin stormwater contribution downstream of S-79 Structure will not be diminished during dry times.

The CERP includes features that will increase storage in the Caloosahatchee Basin through the construction of a reservoir and aquifer storage and recovery (ASR) wells (USACE and SFWMD 1999). Modeling studies using discharge scenarios, which included the CERP and Lower East Coast (LEC) Plan projects, indicate that the MFLs will be met by 2020 when these facilities in the Caloosahatchee Basin are completed and fully operational.

The MFL Rule, in Section 40E-8.011(3), Florida Administrative Code, (F.A.C.), also states that the minimum flow criteria for the Caloosahatchee River and Estuary should be reviewed and amended as necessary within one year of the effective date of the rule. The purpose of this review was to re-examine the technical and scientific basis of the Caloosahatchee MFLs in light of comments by a scientific peer review committee and results obtained from additional field observations, laboratory experiments and numerical model development. The review, contained in the Technical Documentation to Support Development of Minimum Flows and Levels for the Caloosahatchee River and Estuary 2003 Status Update Report (SFWMD 2003), specifically evaluated the ability of the 300 cfs discharge at the S-79 Structure to protect the submerged aquatic vegetation.

This study concluded that the 300 cfs target for flows across the S-79 Structure, by itself, probably does not provide sufficient flow to fully protect water resources from significant harm. Additional or improved storage facilities may need to be provided in the watershed, including downstream of S-79. The MFL should incorporate local basin runoff west of S-79. Flows higher and lower than the average of 300 cfs should be considered based on the downstream. However, before any decisions are made to modify the CERP projects or the MFL criteria, estuarine and biological models need to be completed and fully calibrated, and improved flow measurements need to be obtained, especially for downstream tidal basin inflows.

Since establishing the MFL criteria for the Caloosahatchee River, the criteria have been exceeded during three of four years, resulting in one MFL violation (two consecutive years). The expectation is that periodic to frequent exceedances and violations of these criteria will continue to occur until the recovery plan, which includes projects such as the C-43 West Reservoir Project (discussed under “Other Related Studies and Projects” in this chapter), are constructed and become operational, providing additional flow to the estuary during dry periods. Despite difficulties in meeting the MFL, high-volume flows during 2004, 2005 and 2006 were a much greater concern.

8.2 Government Cooperation

Recommendation: The SFWMD should continue working with other government entities including the Florida Legislature, USEPA and FDEP, to accomplish changes in ASR and desalination disposal regulations.

Progress: The SFWMD is committed to conducting scientific studies to determine the impact of such injections on the aquifer system before it proceeds with any requests for legislative or rule changes that may affect the storage of partially treated water via ASR. To date, no legislation or rulemaking has been initiated.

8.3 Wetlands Drawdown Study

Recommendation: The District should continue the Wetlands Drawdown Study and use the knowledge gained during the rulemaking process as outlined in Recommendation 8.1.1 for the CUP Program.

Progress: Wetland protection standards and thresholds have been established in Section 3.3 of the *Basis of Review for Water Use Permit Applications* (SFWMD 2003) to protect wetlands and other surface waters from harm caused by consumptive use withdrawals of water. This rule was based on analysis of wetland monitoring data.

8.4 Public Information

Recommendation: The District will make the groundwater models, data and other relative information referenced in the 2000 LWC Plan available to the public.

Progress: The District abides by all applicable public records rules and statutes, making available any applicable data or other information.

REFERENCES CITED

- South Florida Water Management District. 2000. *Lower West Coast Water Supply Plan*, Water Supply Department, Water Resources Management, SFWMD, West Palm Beach, FL.
- South Florida Water Management District. 2003. *Basis of Review for Water Use Permit Applications within the South Florida Water Management District*. Environmental Resource Regulation Department, SFWMD, West Palm Beach, FL. vari. pag.
- South Florida Water Management District. 2000. Technical Documentation to Support Development of Minimum Flows and Levels for the Caloosahatchee River and Estuary. Water Supply Department, SFWMD, West Palm Beach, FL.
- South Florida Water Management District. 2000. Proposed Minimum Water Level Criteria for the Lower West Coast Aquifer System within the South Florida Water Management District. Water Supply Department, SFWMD, West Palm Beach, FL. 30p.
- South Florida Water Management District. 2003. Technical Documentation to Support Development of Minimum Flows and Levels for the Caloosahatchee River and Estuary 2003 Status Update Report. Water Supply Department, SFWMD, West Palm Beach, FL. vari. pag.
- South Florida Water Management District. 2000. *Caloosahatchee Water Management Plan*, Water Supply Department, Water Resources Management, South Florida Water Management District, West Palm Beach, FL.
- United States Army Corps of Engineers and South Florida Water Management District. 2002. *CERP Guidance Memorandum Number 4*. USACE, Jacksonville District, Jacksonville, FL, and SFWMD, West Palm Beach, FL.

